

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
10 February 2005 (10.02.2005)

PCT

(10) International Publication Number  
**WO 2005/011978 A1**

- (51) International Patent Classification<sup>7</sup>: B32B 27/36, 27/32, 27/30
- (21) International Application Number: PCT/EP2004/051560
- (22) International Filing Date: 21 July 2004 (21.07.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 03017259.7 30 July 2003 (30.07.2003) EP
- (71) Applicant (for all designated States except US): CRYOVAC, INC. [US/US]; 100 Rogers Bridge Road, Duncan, South Carolina 29334 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): FORLONI, Roberto [IT/IT]; Via Montenevoso, 30, I-20014 Garbatola di Nerviano (MI) (IT). LONGO, Eugenio [CA/IT]; Via Capuana 3, I-20017 Rho (MI) (IT).
- (74) Agent: DE CARLI, Elda; Sealed Air S.r.l., Via Trento, 7, I-20017 Passirana di Rho (IT).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AB, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2005/011978 A1

(54) Title: MULTILAYER ORIENTED HIGH-MODULUS FILM

(57) Abstract: The invention relates to a high modulus, bi-axially oriented film, heat-shrinkable or non heatshrinkable, comprising a first outer layer comprising a polyester or a copolyester, a second outer layer comprising an ethylene or propylene homo- or co-polymer, a core layer comprising an ethylene-vinyl alcohol copolymer, and no core polyamide or polyester layers. The film according to the present invention is prepared by orienting biaxially a flat extruded tape by means of a tenter frame, preferably simultaneously, and has a modulus higher than 6,000 kg/cm<sup>2</sup> in at least one direction. The film of the present invention is particularly useful, in the non heat-shrinkable version, for food and non food packaging applications.